



October 3, 2016

TO: Hardy Bullock, Director of Aviation and Community Services
FOM: Richard Pearl, President, Truckee-Tahoe Soaring Association
RE: Aircraft Noise Reduction Proposal – Engine Re-build

Background

The purpose of this communication is to request funding for flight equipment support that would lead to noise reduction by the glider operation at Truckee-Tahoe Airport District. This request is being made by Truckee-Tahoe Soaring Association (TTSA), a federally-recognized 501c3 corporation providing commercial rides to the public, glider instruction, youth aviation education, and the launching of private gliders. We have been providing these services (previously under the Soar Truckee, Inc. (STI) corporate structure) since the 1970's.

Aircraft noise has always been a concern of the District and the District has taken numerous steps to reduce the noise impact on local residents. In 2012, as part of a continuing effort to reduce the noise footprint, TTAD partnered with STI in upgrading one towplane (N7487Z) with a 250 hp engine and concomitantly installing a four-blade propeller. The second tow plane continued to use its 235 horsepower engine with a two bladed propeller.

As contained in a 2012 TTAD Board report on STI: "TTAD provided \$25,000 towards the anticipated \$32,000 total (engine) project. The final bill was \$43,658 – with STI paying \$18,658. The benefit to TTAD was the resultant (immediate) reduction in the noise footprint from the higher horsepower allowing the aircraft to get up higher and faster. The addition of the muffler and the four-blade propeller also enabled this outcome".

Noise Reduction Factual Testing

In September 2016 TTSA conducted a test of the effects of the noise reduction effort using a calibrated db meter. Both tow planes sequentially towed a SGS 2-33 glider with only the pilot in the aircraft on identical flight launch plans, i.e. take off from the main launch area on runway 20 with a left 270 degree turn to a point directly over the 29/20 intersection. The db level on the 250 horsepower tow plane was 70 db and the db for the 235 horsepower tow plane was 83, or an 18.6% difference. However, since the db scale is logarithmic **the actual noise reduction of the higher horsepower aircraft was 50%**. This is a logical outcome since the higher horsepower aircraft climbs higher, faster, and has a four-blade propeller (note: we have determined that safety is compromised with using a four-blade propeller on the 235 aircraft due to reduced thrust, which is why we reverted to the two blade propeller on the lower horsepower tow plane).

Noise Reduction proposal

Our level of flight business requires two tow planes. While we rely on the higher horsepower aircraft as our primary launch aircraft, the "Pickle" (N7516Z) is frequently in use, and especially on weekends. Although the engine is high time, it is still very serviceable and could be used in its current configuration for many years.

We have received informal bids to rebuild 6Z's engine to bring it up to that of the 250 horsepower 7Z aircraft. All bids are in the \$32,000 range. This contribution level is requested of TTAD; any excess will be bourn by TTSA. TTSA will also install a four-blade propeller (previously purchased) on the revitalized aircraft. There is no reason to not assume that the 50% noise reduction level will be achieved with this configuration.

TTAD and Soar Truckee, Inc. entered into an agreement in 2012 that established the purchase/ownership guidelines, i.e. that the engine acquisition obligation to TTSA would be reduced over a ten year period, plus other safeguards for TTAD. We are open to a similar agreement for this engine acquisition.

Summary

Everyone involved in aviation in Truckee understands that noise reduction is a worthwhile goal and is in everyone's best interest. We believe that this partnership between TTAD and TTSA for a higher horsepower engine will help achieve that goal.